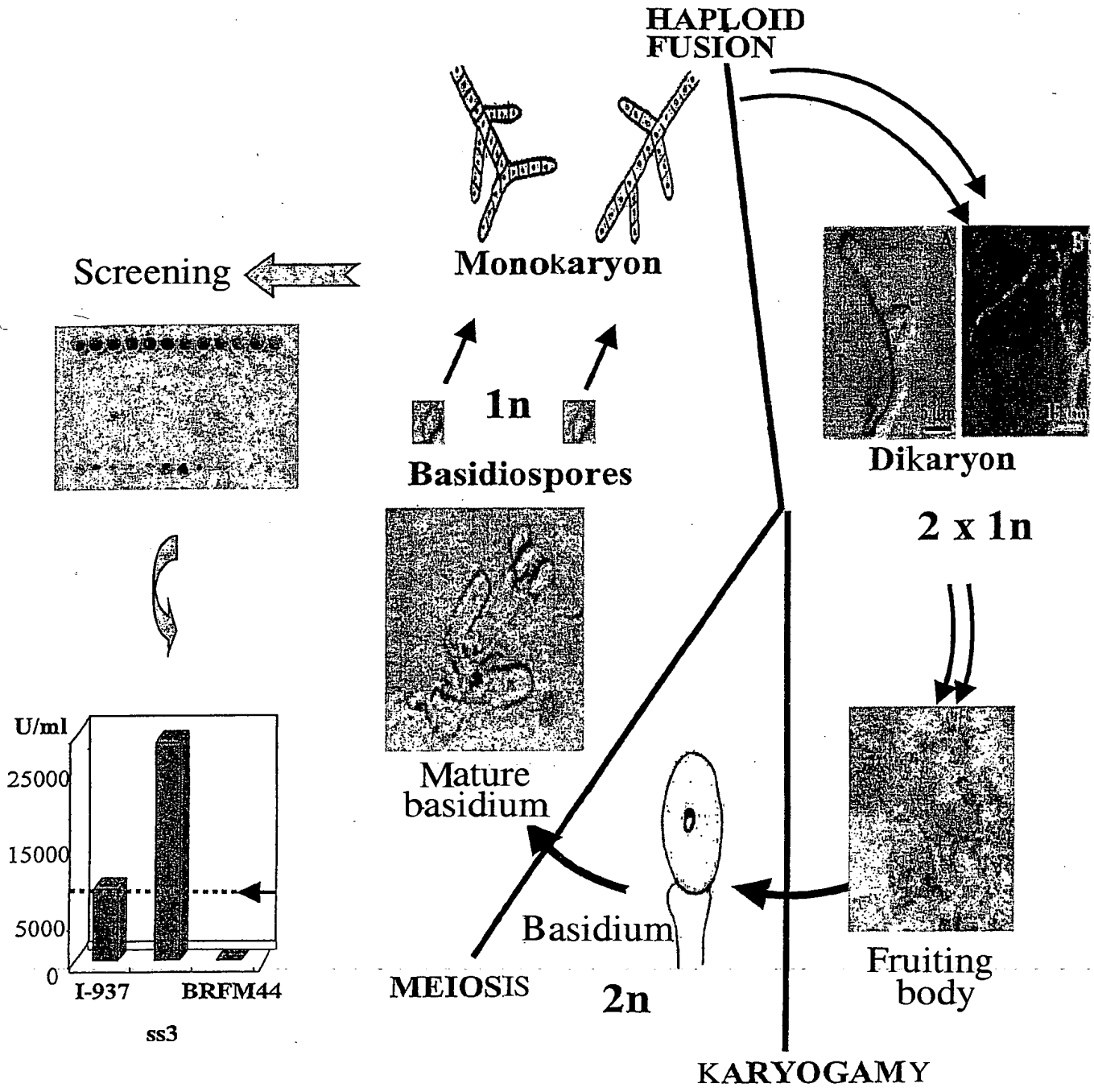

Figure 1 : Isolation of monokaryotic strain deficient in laccase activity.

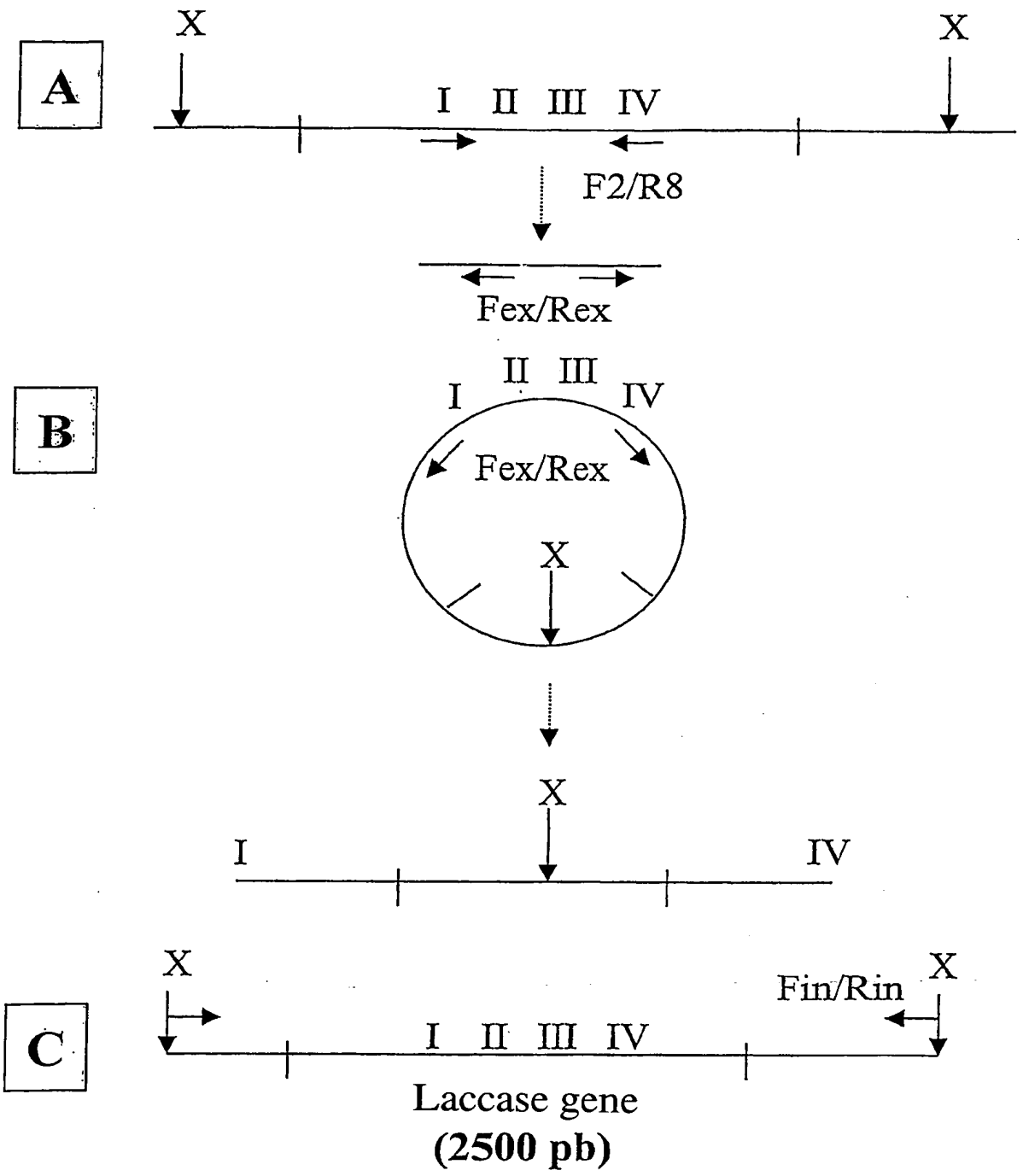

Figure 2 : Isolation of the gene coding for the laccase of *Pycnoporus cinnabarinus* laccase.

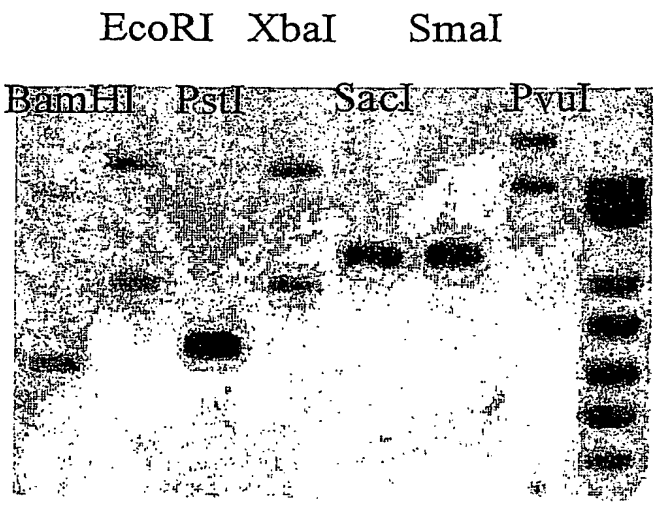

Figure 3 : Southern blot study of the gene coding for the laccase of *Pycnoporus cinnabarinus.*

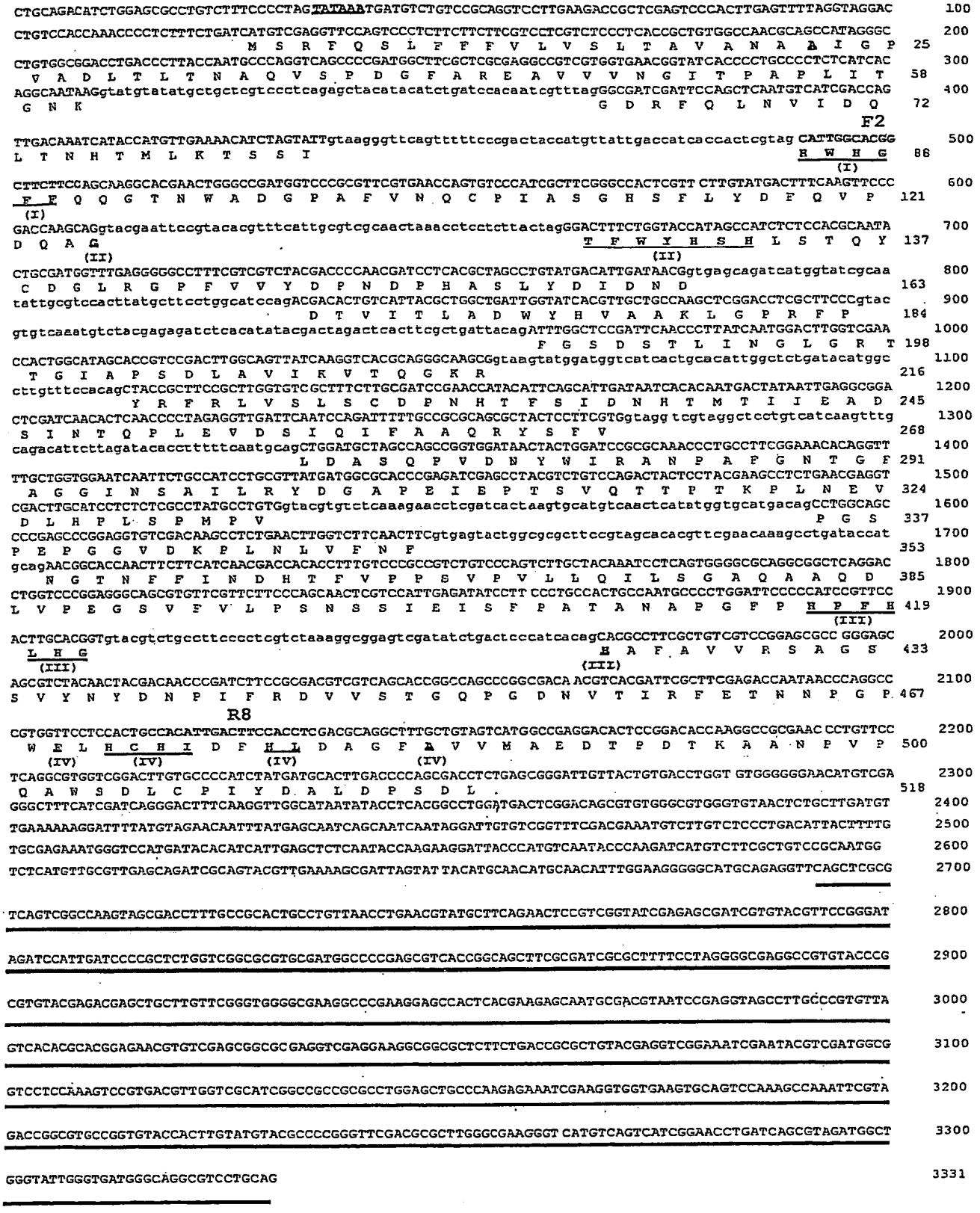

Figure 4 : Sequence of the gene coding for the laccase of *Pycnoporus cinnabarinus*

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TCTTGATCCATCATTGACTCACCGGCATCGGCGTCAACACCAAAGCAAGCTCGTCCCACCCATAGGCGTGCA
CCGGCCGGCGTGCGCCATTGAGGTACATGAGCGGGGCGAAAGTCCGCCATTGGTAGCCCTGTCGTGGACGCG
CGGCGATGAAACGTTTCCCACCATTGGGAAGAAACGTCTGCGGCCCATCATCCCTTCACCGGATGACAAGGC
GGCGTCGCGCCTTTGCCGCAGAGGCCGGCGGGCGACATGCACAGCGAAGGTCCGTTGCGGATGGGAAGCAGG
CAATCAGTGGGTGTCCTACGCCGCCACGATGGTCGGGGAGCGTAGGCGCCCTCCCATAAGGCGGCAAGCATC
ATGATGCTCTCCGATTCGGGAAGCCTGGTGCGATGCTGGAGAGACTCTCTCCGAGAGACCAGTGTGCGCAAC
GTTCCTGGCCTGGAAGACTTTAAAGTGAGTGTAGAAGGGCGAGCAGAGGACGATCATCGGATTGCAGGAACC
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TTCTTGGATGATCATGTCGTAACTTTTTCTGACCTCGTCGGTGGTACGCATGGCAGGATTGAGCATTACGGT
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CGAACAATTGACTTACCGACATCCTCCGGGACGCGCAAATGCTGTTCGACGGAACGTAATCCTCTTCGTCCC
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CGCAGGTCCTTGAAGACCGCTCGAGTCCCACTTGAGTTTTAGGTAGGACCTGTCCACCAAACCCCTCTTTCT
GATCATG

Figure 5 : Sequence of the promoter sequence of the gene coding for the laccase of *Pycnoporus cinnabarinus* (up to the ATG coding for the methionine of the laccase).

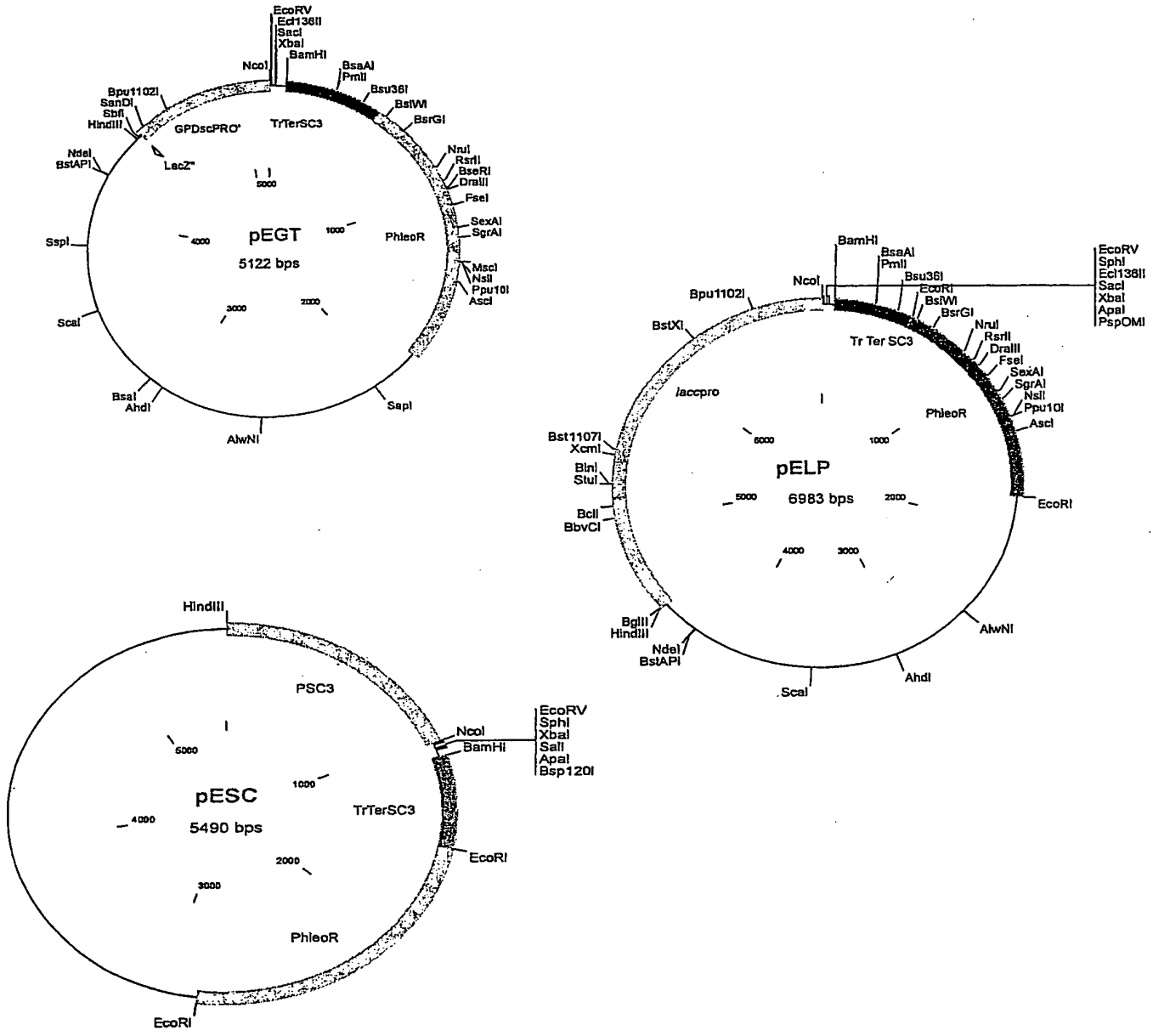

Figure 6 : Restriction map of the three expression vectors used for the production of laccase in *Pycnoporus cinnabarinus.*

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CTTCTCCAGCACTCCCATCCAGAGCACTTCCCTCTCCCATCGCATCCCATCACACAATAATGCCCATCAC

Figure 7 : Nucleotide sequence of the vector pEGT, containing the gpd gene promoter (4480-5112), a phleomycin resistance marker (507-1822) and the sc3 gene terminater (71-507).

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GGGAGGGGTGCGTTTGGTACGTCTTTACGTCTGGCTATGTTGTATTGACCAGCGTCTGCAGAAGATGGGCACGACGATGCGCCGAGCCG
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TTTCCCAGTCACGACGTTGTAAAACGACGGCCAGTGCCA

Figure 8 : Nucleotide sequence of the vector pESC, containing the sc3 gene promoter (1-1033), a phleomycin resistance marker (1540-2855) and the sc3 gene terminater (1104-1540).

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AACCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCGTATTGGGCGCTCTTCCGCTTCCTCGCTCACTG
ACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAGGGGATAACG
CAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCC
CCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAG
CTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCT
CACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGCGCCTT
ATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAG
GTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAG
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TCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATT
TATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCC
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TATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCT
CCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAA
GATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACG
GGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCT
GTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACA
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TGAAATACCGCACAGATGCGTAAGGAGAAAATACCGCATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGT
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ACGTTGTAAAACGACGGCCAGTGCCAAGCTTAGATCTCCGAACCAGAAATGCGATTGCGTTCAGGCCCAATTAAGAATAAAGCTGCGTCA
GGGCAGCGACGTATCTTGATCCATCATTGACTCACCGGCATCGGCGTCAACACCAAAGCAAGCTCGTCCCACCCATAGGCGTGCACCGGC
CGGCGTGCGCCATTGAGGTACATGAGCGGGGCGAAAGTCCGCCATTGGTAGCCCTGTCGTGGACGCGCGGCGATGAAACGTTTCCCACCA
TTGGGAAGAAACGTCTGCGGCCCATCATCCCTTCACCGGATGACAAGGCGGCGTCGCGCCTTTGCCGCAGAGGCCGGCGGGCGACATGCA

Figure 9 : Nucleotide sequence of the vector pELP, containing the laccase gene (promoter 4457-6983) , a phleomycin resistance marker (507-1822) and the sc3 gene terminater (71-507) (continuation of the sequence on the following page).

CAGCGAAGGTCCGTTGCGGATGGGAAGCAGGCAATCAGTGGGTGTCCTACGCCGCCACGATGGTCGGGGAGCGTAGGCGCCCTCCCA
TAAGGCGGCAAGCATCATGATGCTCTCCGATTCGGGAAGCCTGGTGCGATGCTGGAGAGACTCTCTCCGAGAGACCAGTGTGCGCAAC
GTTCCTGGCCTGGAAGACTTTAAAGTGAGTGTAGAAGGGCGAGCAGAGGACGATCATCGGATTGCAGGAACCATCGGCATCCTCAGC
CTGGGAAGGATGGCTCTTGGTAGACATTCGCGGAAGGTGTCCTAGATGTGAGCGGGCTTCTTGGATGATCATGTCGTAACTTTTTCTGA
CCTCGTCGGTGGTACGCATGGCAGGATTGAGCATTACGGTATGCCTCCCATTCATAAACGATAACCCCTTCCTTCAGGTTGGTCATCTC
CATAGAGCGGCACGCTCTCAAGGCCTAGGCTATTCACACCTCCTTCGCAACATCCCTATTCACGGTGTCTGTAAGGAACGACTTGTCAT
GGGATCACATGAAGTGCAGCATACTGTTCGCCGGTCTCGCAGTACAGACGCTAGTACGGGAAGTCGACATCCAAGCGTTCAGTCACCA
CATGGCAAAAAAGCTGCACCATACTCTTTATGGTGAGTTGTTCGTGAGTGGTATACAGTCATTCATGAGGGAATGCCCACCGGATAGG
GTGTGGCGGCCGCAATATTCATCGCCTGGCAATAGTCGATGTGCGTCCTTGTTCAATGAATATCATGGGTCACATGTGGAGACGGTTAA
ACAGCGTTGACTGTGAATCCCTGGTGTGTGTTGGGCCGAACAGGTACGTTGCAGGAACACCAATATCTCTTCGGCAGCCCAGTTCTTTG
CGAGCGGCACAGGCAGGCATCGCGCAACAGATCCCAGCCATCCGGCCTCTGACATTCGGGATACCTGAAGCCCTTCAGGTACGGAGC
GAAGAGGTGGGCTCTCTGCAGCGATTGGCGGACGGATAGCTGTATTTCCTCTCTCACCATTGGGAAGATGTGAAAGGCTCCATCATAT
AGCGGCTCAACTCTACCTCGAATGTCCAAACACGGCGGGAATACTTATTTATGTGGACAAGGCCGAGCTATGATAGCTTGCTCCCGAA
GTTGGTAAGTCCCGCAATCTGCGGTTCAGGCAACAGTCTCGGAAAAATAAGAAGAATATTGTAGGTGCGTGTAGGCGTATCGCCCAAA
TGCGCACACACGGAGGCTTTAGGAGATGAAGCGCCCGTGAGCGGTAAGGGAGTTGGTTCACCGCCGCCCCGACCGACTCTCTCTCTTT
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GCAATCCAGACCCTTAGCCGGTTCGTTACTCATCGTTATCCCTGCCGCCATCGTAGTGGAGTCAGCCTGGCCAGTGCGTAGTCCCGTCT
CTCTTGCTGCACTAGAGAAGCCCCATGAGACAGCGTTTTTTGCTTTATTTCTGCTGTTTCTATAGACACCATAGGGGCAAACGATCCTG
CACGCCCAGAGGTATTGGGCTCGTCAGATTCCCAGTTTTTCTCCTCGGTCTGAATCGGCTGCACGGCAGATAAATCGGCCGGAAATGCT
ATAGCCCTTCATAGCCCGCTATGAGAGTCGCAAAAGGCTTGTCAGTCAGGTCGGTCGAGTGGCTCTCACGAAGAGCGTCAACTTCGCG
CGACAGCCGCCTTTCAGGGCAAGATAGATCCTCCCATCATCCCCTACTGCGCTCAGCGCCGGTACCGAACAATTGACTTACCGACATC
CTCCGGGACGCGCAAATGCTGTTCGACGGAACGTAATCCTCTTCGTCCCGCCTCTTTTCGCTCTCACGCATTCCGTGTGGTTCGCGCGA
CGGCCGCTCATCAGGACCAGACCAGTCTCAATGTCTGGTACCGGCACAATGGTGACACTGCGGCAACTGAGTAGGTCTGGTCACTCTG
GTGCACCGTCGCTTACGCTGACCTTCGGGATACTGTCCTGCAGACATCTGGAGCGCCTGTCTTTCCCCTAGTATAAATGATGTCTGTCC
GCAGGTCCTTGAAGACCGCTCGAGTCCCACTTGAGTTTTAGGTAGGACCTGTTCCTCCACAACCCCTCTTTC

Figure 9 : Nucleotide sequence of the vector pELP (continuation), containing the laccase gene (promoter4457-6983), a phleomycin resistance marker (507-1822) and the sc3 gene ternminater (71-507).

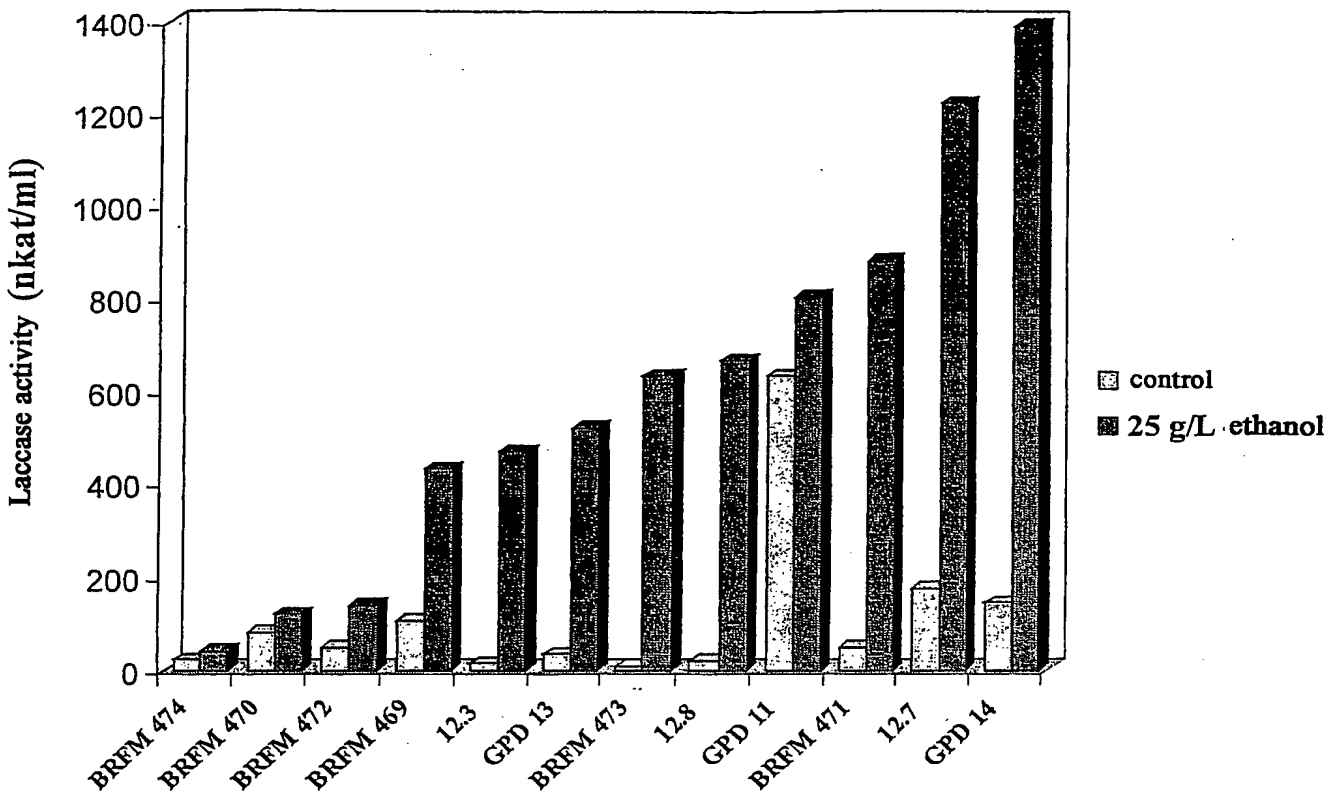
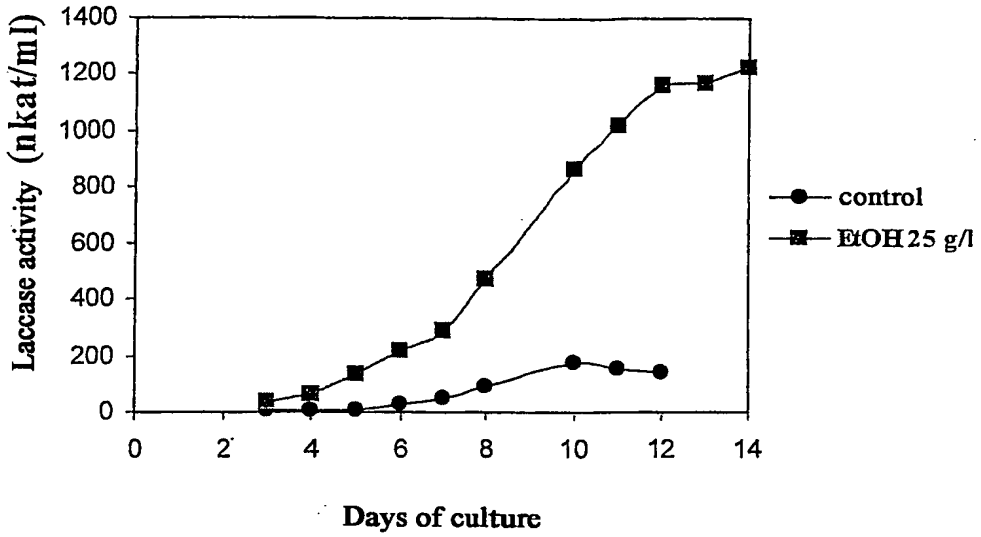


Figure 10 : Results of production of the transformants having the most significant activities. The culture was carried out with or without (control) ethanol.



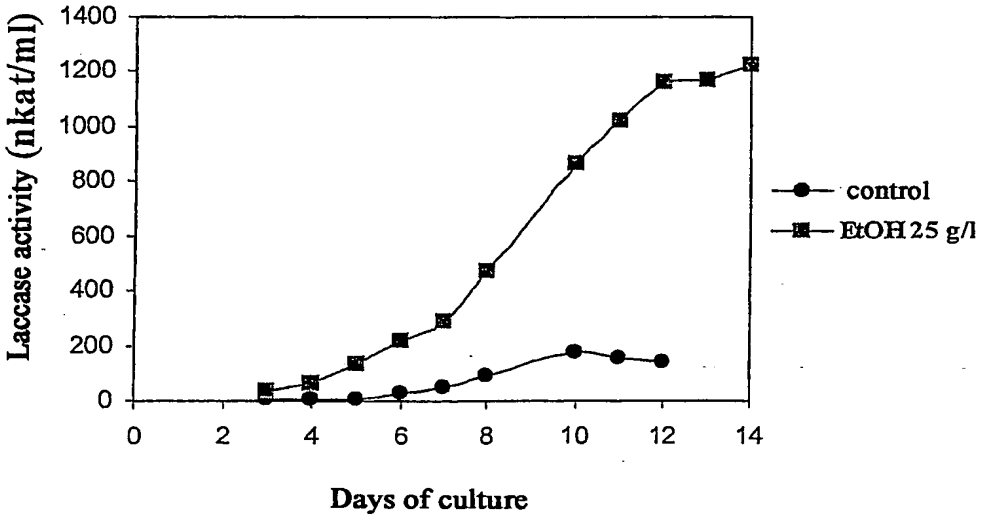
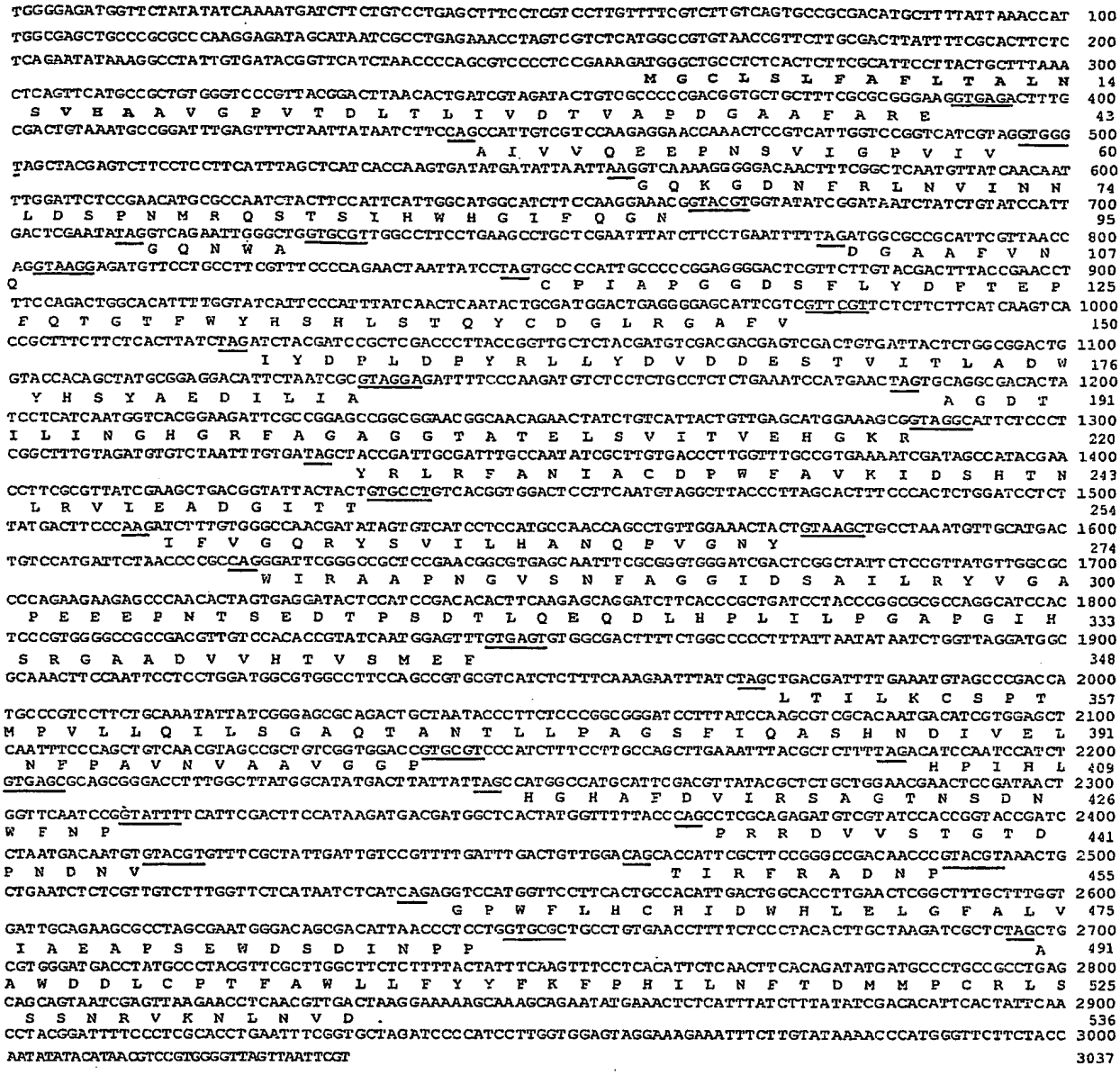


Figure 11 : Monitoring of the laccase activities of the transformants GPD 14 and 12.7 as a function of time with or (control) without ethanol



Gene of the laccase of *Halocyphina villosa*

Figure 12